AN INTEGRATED APPROACH TO BRIGHTNESS AND CONTRAST NORMALIZATION IN APPEARANCE-BASED OBJECT DETECTION

ABSTRACT

5   A system and method for appearance-based object detection includes a first portion capable of brightness and contrast normalization for extracting a plurality of training images, finding eigenimages corresponding to the training images, receiving an input image, forming a projection equation responsive to the eigenimages, solving for intensity normalization parameters, computing the

10   projected and normalized images, computing the error-of-fit of the projected and normalized images, thresholding the error-of-fit, and determining object positions in accordance with the thresholded error-of-fit; and optionally includes a second portion capable of forming eigenimages for multiresolution for sub-sampling the training images, forming training images of coarse resolution in accordance with

15   the sub-sampled images, computing eigenimages corresponding to the training images of coarse resolution, interpolating the eigenimages for coarse resolution, performing orthonormalization on the interpolated images by singular value decomposition, and providing pseudo-eigenimages corresponding to the orthonormalized images for a finer resolution.